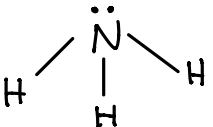
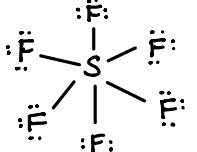
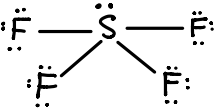
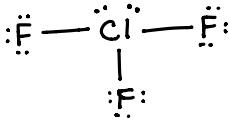
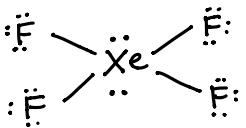


SCH4U - VSPER Worksheet - Simulation Activity

Molecule	Total # of valence electrons	Lewis Structure	# of outer atoms (X)	# of lone pairs (E)	AX _m E _n	Molecular Shape	Bond Angles (VSEPR)	Symmetric?
CCl ₄	C: 4 v.e. Cl: 7 v.e. 4 + 4 × 7 = <u>32</u>	<pre> :Cl: :Cl - C - Cl: :Cl:</pre>	4	0	AX ₄	Tetrahedral	109.5°	Yes
CHCl ₃	C: 4 v.e. H: 1 v.e. Cl: 7 v.e. 4 + 1 + 3 × 7 = <u>26</u>	<pre> H :Cl - C - Cl: :Cl:</pre>	4	0	AX ₄	Tetrahedral	109.5°	No
CO ₂	C: 4 v.e. O: 6 v.e. 4 + 2 × 6 = <u>16</u>	<pre> :O = C = O:</pre>	2	0	AX ₂	Linear	180°	Yes
HCN	C: 4 v.e. H: 1 v.e. N: 5 v.e. 4 + 1 + 5 = <u>10</u>	<pre>H - C ≡ N:</pre>	2	0	AX ₂	Linear	180°	No
H ₂ O	H: 1 v.e. O: 6 v.e. 2 × 1 + 6 = <u>8</u>	<pre> .. H - O - H ..</pre>	2	2	AX ₂ E ₂	Bent	< 109.5°	NO

NH ₃	N: 5 v.e. H: 1 v.e. $5 + 3 \times 1 = \underline{\underline{8}}$		3	1	AX ₃ E ₁	trigonal pyramidal	< 109.5°	NO
SF ₆	S: 6 v.e. F: 7 v.e. $6 + 6 \times 7 = \underline{\underline{48}}$		6	0	AX ₆	octahedral	90°	Yes
SF ₄	S: 6 v.e. F: 7 v.e. $6 + 4 \times 7 = \underline{\underline{34}}$		4	1	AX ₄ E ₁	seesaw	< 120° eq. < 90° ax.	NO
ClF ₃	Cl: 7 v.e. F: 7 v.e. $7 + 3 \times 7 = \underline{\underline{28}}$		3	2	AX ₃ E ₂	T-shaped	< 90°	NO
XeF ₄	Xe: 8 v.e. F: 7 v.e. $8 + 4 \times 7 = \underline{\underline{36}}$		4	2	AX ₄ E ₂	square planar	90°	Yes

SF ₃ N	S: 6 v.e. F: 7 v.e. N: 5 v.e. 6 + 3x7 + 5 = <u>32</u>	<pre> .. N :F - S - F: :F: .. </pre>	4	0	AX ₄	Tetrahedral	109.5°	No
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